ALBERTA FIRE COMMISSIONER'S OFFICE

2003 | Alberta Fire Commissioner's Statistical

REPORT

Alberta

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Minister's Message

The Alberta Fire Commissioner's Office (FCO) remains committed to helping the province's fire services find new and effective ways of keeping Alberta's communities safe.

Key to this is the support and dedication of the members of the Fire Services Advisory Committee. The committee brings a clear vision to the province's fire services and provides leadership to address the challenges facing fire and emergency services. This includes developing universal standards for equipment and training, and exploring models for regional co-operation.

The partnership between the FCO, fire departments and industry is vital to the promotion of fire safety and fire prevention, and I encourage you to continue building on this relationship.

Thank you for your dedication and commitment to the safety of all Albertans.

Rob Renner
Minister, Alberta Municipal Affairs

Fire Commissioner's Message

The 2003 Fire Commissioner's Annual Statistical Report is an important reminder of the devastation that fires can have in Alberta's communities. A total of 5,614 fires were reported to the Fire Commissioner's Office for 2003. These fires resulted in 24 deaths, 321 injuries and $346 million in property losses. This compares to 5,986 fires in 2002. In order for the Fire Commissioner's Office (FCO) to understand whether this reduction is accurate, or due to under-reporting, it is critical we receive reports relating to all reportable fires that occur in Alberta. I encourage you to assist us in this important aspect of our duties.

During 2003, 28 per cent of all fires in Alberta occurred in homes. Home fires accounted for 46 per cent of all fire deaths, 61 per cent of all fire injuries and 20 per cent of all property losses from all fires. Home fire safety continues to be a primary focus of the FCO's fire prevention and safety programs.

In its quest for continuous improvement, the FCO has implemented a number of programs and services that provide assistance and resources to our colleagues in Alberta's fire service. These new programs and services include the Alberta Emergency Response Inventory System (AERIS), the Fire Electronic Reporting System (FERS), and a more inclusive Municipal Grants Program. The FCO also supports closer co-operation with our Métis and First Nation citizens in the field of fire protection, and the Risk Watch injury prevention program, which is aimed at Alberta children.

Our website at www.municipalaffairs.gov.ab.ca/fco is regularly updated to keep the fire service and other stakeholders informed of new programs and services. I encourage you to use these programs and services, as well as the information provided in this report, to help you promote fire protection, prevention and safety in Alberta.

Pat Graham
Fire Commissioner

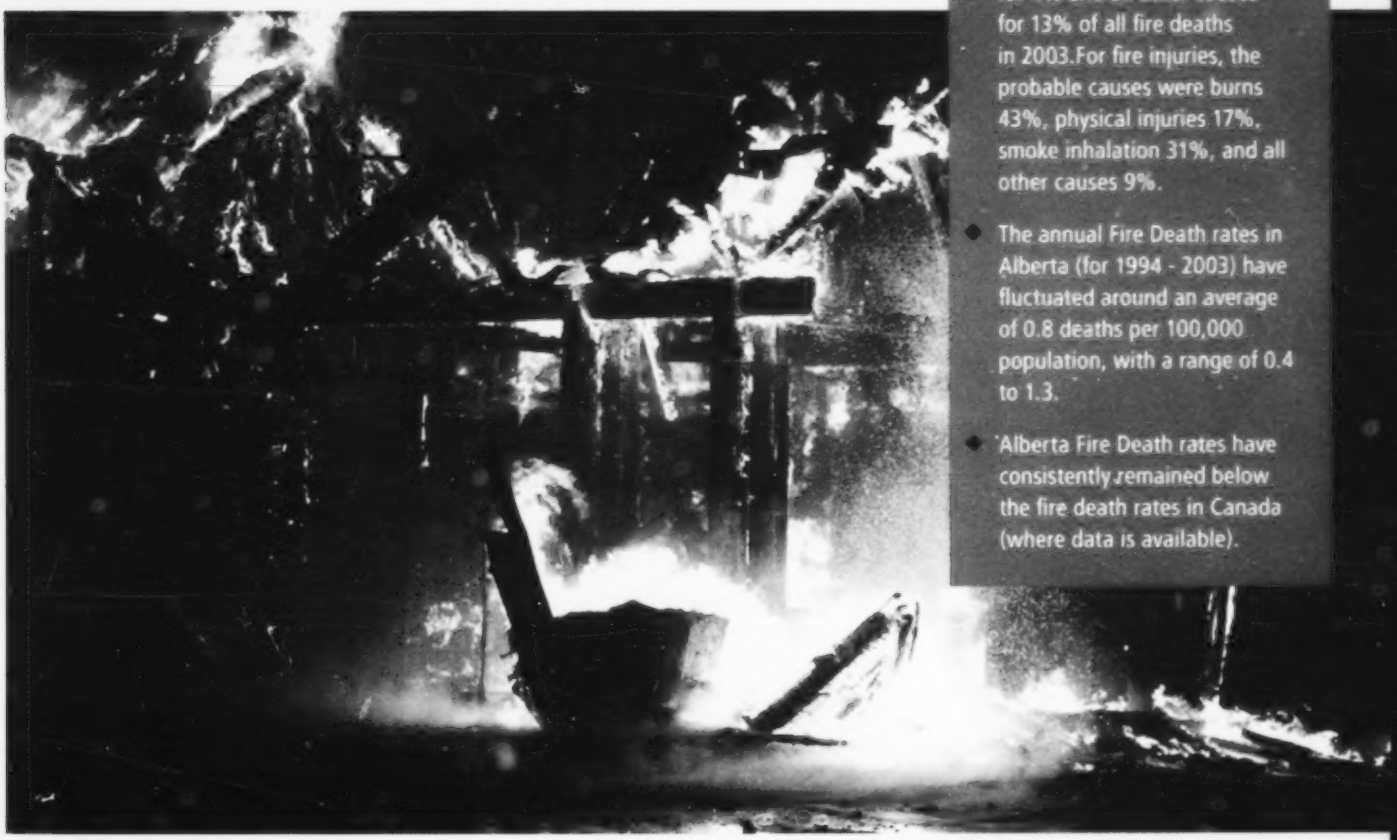
Fire Deaths and Death Rates
(Alberta and Canada)

Year	Population	Fire Deaths*	Deaths Involving Fire**	Total Deaths	Alberta Fire Death Rate***	Canada Fire Death Rate
1994	2,601,282	22	3	25	0.8	1.3
1995	2,615,873	31	5	36	1.2	1.4
1996	2,679,435	34	7	41	1.3	1.3
1997	2,744,731	24	13	37	0.9	1.4
1998	2,781,290	12	8	20	0.4	1.1
1999	2,871,271	34	17	51	1.2	1.3
2000	2,932,963	19	8	27	0.6	1.1
2001	2,962,664	27	16	43	0.9	1.1
2002	3,050,889	13	18	31	0.4	–
2003	3,091,831	14	10	24	0.5	–

* A Fire Death is death directly due to fire or death within one year of a fire injury.
** A Death Involving Fire is a death from causes other than fire, but occurs at a fire incident.
*** Fire Death Rate = number of Fire Deaths per 100,000 population.

FIRE FACTS

- Based on known probable causes of death, smoke inhalation accounted for 68%, burns for 17%, physical injuries for 4% and all other causes for 13% of all fire deaths in 2003.For fire injuries, the probable causes were burns 43%, physical injuries 17%, smoke inhalation 31%, and all other causes 9%.
- The annual Fire Death rates in Alberta (for 1994 - 2003) have fluctuated around an average of 0.8 deaths per 100,000 population, with a range of 0.4 to 1.3.
- Alberta Fire Death rates have consistently remained below the fire death rates in Canada (where data is available).



Location of FIRE Deaths 2003

Calgary	3
Edmonton	3
Edson	1
Fort McMurray	1
Grande Prairie No. 1, County of	1
Special Area No. 2	1
Leduc	1
Leduc County	1
Parkland County	1
Rocky View No. 44, M.D. of	2
Vegreville	1
Westlock County	2
Wheatland County	1
Kananaskis Improvement District	1
Cypress County	1
Mackenzie No. 23, M.D. of	2
Big Lakes, M.D. of	1
Total	**24**

Causes of Fire-Related Deaths

Fire Deaths

One/Two Family Dwellings, Apartments and Mobile Homes, Cabins

Victim asleep (suspect alcohol/drugs/med) – cause unknown	1
Victim asleep (suspect alcohol/drugs/med) – stove/top burner ignited unknown material	1
Metal chimney installed too close ignited wood floor covering	1
Electrical short circuit in extension cord ignited electrical insulation	1
Cigarette ignited mattress/pillow	1
Cigarette ignited bedding – victim asleep (suspect alcohol/drugs/medication)	2
Candle ignited upholstered furniture	1
Torch other than cutting, welding ignited propane	1
Unknown	3

Home for Aged – without nursing staff

Cooking oil on stove ignited	1

Residential Garage

Arson or set fire ignited upholstered furniture	1
Total Fire Deaths	**14**

Deaths Involving Fire

Outdoor Property

Grass/brush/leaves ignited by unknown source	1
Person with mental or physical disability ignited gasoline with lighter	1

Automobiles (includes cars, trucks, vans, single body units)

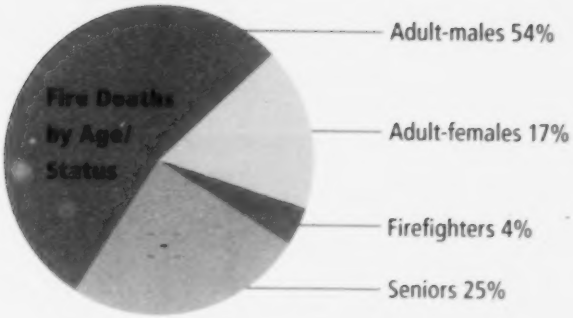
Motor vehicle crash ignited unknown material	1
Unknown source ignited unknown material – victim asleep (suspected alcohol/drugs/medication)	1
Internal combustion engine ignited propane – victim impaired	1
Person with mental or physical disability ignited gasoline with lighter	1
Match/lighter used to ignite unknown material	1

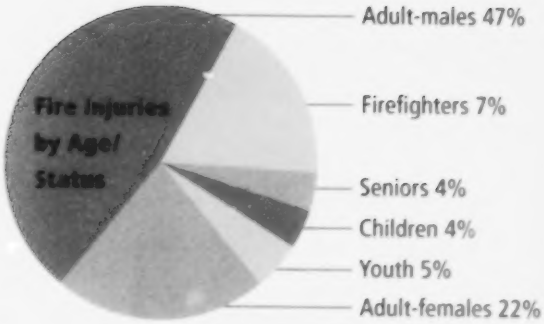
Tractor Trailer

Motor vehicle crash ignited gasoline	2

Construction Equipment (excludes crane)

Part failure of battery/rectifier/charger ignited natural gas	1
Total Deaths Involving Fire	**10**





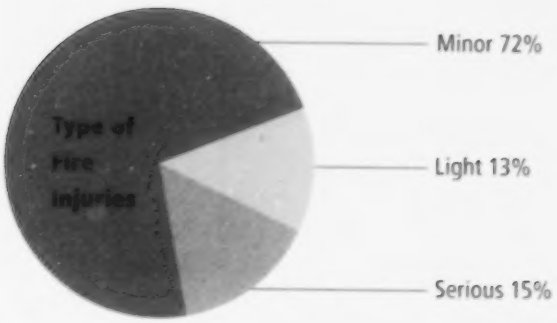
Note: definitions of injuries are provided in the glossary

Seniors: 65 years of age and older

Adults: 18 - 64 years

Youth: 12 - 17 years

Children: 11 years and under



Risk of Fire Deaths and Injuries

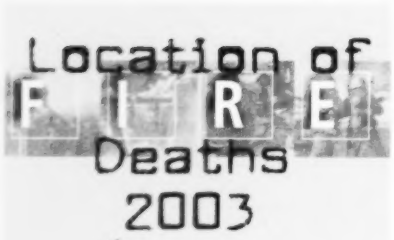
The risk of dying or being injured in a fire can be calculated as the fire death rate or fire injury rate – number of casualties in an age group divided by the population of the age group. When fire deaths or injuries were calculated for the five-year period, 1999 - 2003, as annual rates per 100,000 population using the above formula, it was found that:

- Fire death rate for seniors (65+) was 2.0, for adults (20 - 64 years) 1.2, for children (0 - 4 years) 0.7, for children (5 - 9 years) 0.8, and youth (10 - 19 years) 0.4.
- Fire injury rate for adults (20 - 64 years) was 12, for seniors (65+) 7, for youth (15 - 19 years) 7, for children (10 - 14 years) 5.3, and for children (0 - 9 years) 3.3.

Population data source: Page 76 of *Annual Demographic Statistics, 2003*. Statistics Canada Catalogue no. 91-213. (Above rate calculations were done to match the population groupings available in this publication).

FIRE FACTS

- On average, a fire-related death occurred every 15 days in Alberta in 2003.
- 17% each of all fatal casualties were asleep or were bedridden/physically handicapped at the time of the fire. Both the condition and action were unknown in 50% of the fatal casualties.
- There were 0.9 fire injuries per day, on average, in Alberta in 2003.
- 56% of the injured casualties were awake and normal at the time of fire; 13% were asleep and 4% were impaired by alcohol/drugs/medication
- 41% of fire injuries occurred when persons entered or remained inside a building for firefighting (30%) to save property (6%) or for rescue (5%
- 10% of fire injuries occurred while persons were attempting to escap



Fire Deaths

One/Two Family Dwellings, Apartments and Mobile Homes, Cabins

Victim asleep (suspect alcohol/drugs/med) – cause unknown	1
Victim asleep (suspect alcohol/drugs/med) – stove/top burner ignited unknown material	1
Metal chimney installed too close ignited wood floor covering	1
Electrical short circuit in extension cord ignited electrical insulation	1
Cigarette ignited mattress/pillow	1
Cigarette ignited bedding – victim asleep (suspect alcohol/drugs/medication)	2
Candle ignited upholstered furniture	1
Torch other than cutting, welding ignited propane	1
Unknown	3

Home for Aged – without nursing staff

Cooking oil on stove ignited	1

Residential Garage

Arson or set fire ignited upholstered furniture	1

Deaths Involving Fire

Outdoor Property

Grass/brush/leaves ignited by unknown source	1
Person with mental or physical disability ignited gasoline with lighter	1

Automobiles (includes cars, trucks, vans, single body units)

Motor vehicle crash ignited unknown material	1
Unknown source ignited unknown material – victim asleep (suspected alcohol/drugs/medication)	1
Internal combustion engine ignited propane – victim impaired	1
Person with mental or physical disability ignited gasoline with lighter	1
Match/lighter used to ignite unknown material	1

Tractor Trailer

Motor vehicle crash ignited gasoline	2

Construction Equipment (excludes crane)

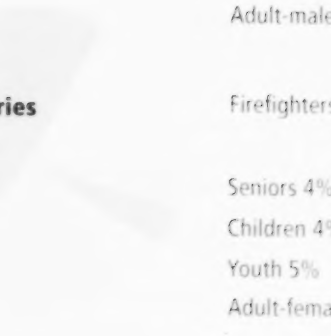
Part failure of battery/rectifier/charger ignited natural gas	1

Total	**24**

Alberta Fire Casualties

Fire Deaths by Age/ Status

Fire Injuries by Age/ Status



Type of Fire Injuries

Risk of Fire Deaths and Injuries

The risk of dying or being injured in a fire can be calculated as the fire death rate or fire injury rate – number of casualties in an age group divided by the population of the age group. When fire deaths or injuries were calculated for the five-year period, 1999 - 2003, as annual rates per 100,000 population using the above formula, it was found that:

- Fire death rate for seniors (65+) was 2.0, for adults (20 - 64 years) 1.2, for children (0 - 4 years) 0.7, for children (5 - 9 years) 0.8, and youth (10 - 19 years) 0.4.
- Fire injury rate for adults (20 - 64 years) was 12, for seniors (65+) 7, for youth (15 - 19 years) 7, for children (10 - 14 years) 5.3, and for children (0 - 9 years) 3.3.

Population data source: Page 76 of *Annual Demographic Statistics, 2003*. Statistics Canada Catalogue no. 91-213. (Above rate calculations were done to match the population groupings available in this publication).

FIRE Facts

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Alberta Fire Casualties

Casualties by Month

FIRE FACTS

- Most Fire Deaths in 2003 happened in February (25%), followed by October (17%), and most fire injuries occurred in March (12%), followed by February (11%). However, a five-year analysis revealed that most Fire Deaths happened in February (15%) followed by April (14%). In a similar analysis, most fire injuries happened in January, March, April, October and December (9% each)
- In 2003, most Fire Deaths (25%) happened on Sundays while most Fire Injuries (20%) happened on Saturdays. In a five-year (1999 - 2003) analysis, most Fire Deaths (24%) and Fire Injuries (16%) happened on Saturdays.
- The majority of Fire Deaths (50%) and Fire Injuries (38%) in 2003 occurred between 6:30 a.m. and 2:29 p.m. A five-year (1999 - 2003) analysis showed most Fire Deaths (38%) happened during 10:30 p.m. and 6:29 a.m., while most Fire Injuries happened during 2:30 p.m. and 10:30 p.m.

Fire Casualties by Day of Week

Fire Casualties by Time of Day

Time Periods	Type of Casualty			
	Fire Injuries		Fire Deaths	
	No.	%	No.	%
6:30 a.m. - 2:29 p.m.	122	38.0	7	50.0
2:30 p.m. - 10:29 p.m.	116	36.1	4	28.6
10:30 p.m. - 6:29 a.m.	79	24.6	2	14.3
Unknown	4	1.2	1	7.1
Total	321	100	14	100

Fire-Related Deaths by Major Property Classification

Property Classification		Fire Deaths		Deaths Involving Fire	
		No.	%	No.	%
Residential	One and Two Family Dwellings	8	57.1	–	–
	Mobile Home (1 or 2 family units)	2	14.3	–	–
	Single Cabins	1	7.1	–	–
	Apartments	1	7.1	–	–
	Sub Total	**12**	**85.7**	**–**	**–**
Special Property – Transportation Equipment	Trucks (including light trucks/vans/ single body units)	–	–	3	30.0
	Tractor Trailer	–	–	2	20.0
	Cars	–	–	1	10.0
	Brush/Grass and Light Ground Cover on Open Land/Field	–	–	1	10.0
	Construction Equipment (excludes crane)	–	–	1	10.0
	Automobile (Including cars/light trucks/vans/single body units)	–	–	1	10.0
	Outdoor Property – Unclassified	–	–	1	10.0
	Sub Total	**–**	**–**	**10**	**100.0**
Institutional	Home For Aged (without nursing staff)	1	7.1	–	–
	Sub Total	**1**	**7.1**	**–**	**–**
Storage Properties	Garage (individual residential parking)	1	7.1	–	–
	Sub Total	**1**	**7.1**	**–**	**–**
Total		14	100.0	10	100.0

FIRE FACTS

- 86% of all Fire Deaths occurred in residential properties, and 70% of all Deaths Involving Fire occurred in automobiles (trucks, tractor trailers, cars, etc.).

Alberta Fire Casualties

Fire Injuries by Major Property Classification

Property Classification	No.	%
Residential		
One and Two Family Dwellings	131	40.8
Apartments	57	17.8
Mobile Home (1 or 2 family units)	9	2.8
Other Residential	18	6.0
Special Property – Transportation Equipment		
Buildings Under Construction/Renovation	9	2.8
Outdoor Property – Unclassified	5	1.6
Construction Equipment (excludes crane), Tar-pot	7	2.2
Trucks, Industrial Trucks, Flammable Liquid/Gas Trucks	9	2.8
Cars	4	1.2
Brush/Grass and Light Ground Cover on Open Land/Field	2	0.6
Storage Properties	20	6.2
Mercantile	17	5.3
Institutional	11	3.4
Miscellaneous Property	8	2.5
Industrial Manufacturing Properties	7	2.2
Assembly	4	1.2
Business and Personal Service	3	0.9
Total	**321**	**100.0**

Major Causes of Fire Injuries

Cause	No.	%
Stovetop fire in pan/deep fryer with ignition of cooking oil	38	12
Stovetop cooking without ignition of cooking oil and other cooking	29	9
Other cooking appliances – ovens, portable, barbecues	12	4
Cigarette/smoker's material igniting upholstered furniture, bedding, etc.	32	10
Arson/vandalism	23	7
Electrical wiring, bulbs, switches, etc. igniting building components/ flammable liquids (mostly short circuits)	23	7
Candles igniting a variety of combustibles	23	7
Furnace/water heater, mostly ignition of combustibles/flammable liquid/gas	15	5
Space heaters (stationary, portable) ignited nearby combustibles/flammable liquids	15	5
Cutting/welding	13	4
Fireplaces, vents, chimneys	9	3
Automobile battery, mostly igniting flammable liquids	8	3
Appliances: short circuits, part failure, etc.	8	3
Child fireplay with matches, lighters, smoker's material	5	2
Internal combustion engine, mostly igniting flammable liquids	5	2
Other	50	16
Unknown	13	4
Total	**321**	**103***

* Rounding resulted in a total of 103.

F I R E

- Most fire injuries occurred in residential properties (68%), particularly in one and two family dwellings (41%) and apartments (18%).
- The majority of fire injuries are inflicted by fires involving cooking (25%), smoking (10%), arson/vandalism (7%), electrical (7%) and candles (7%).

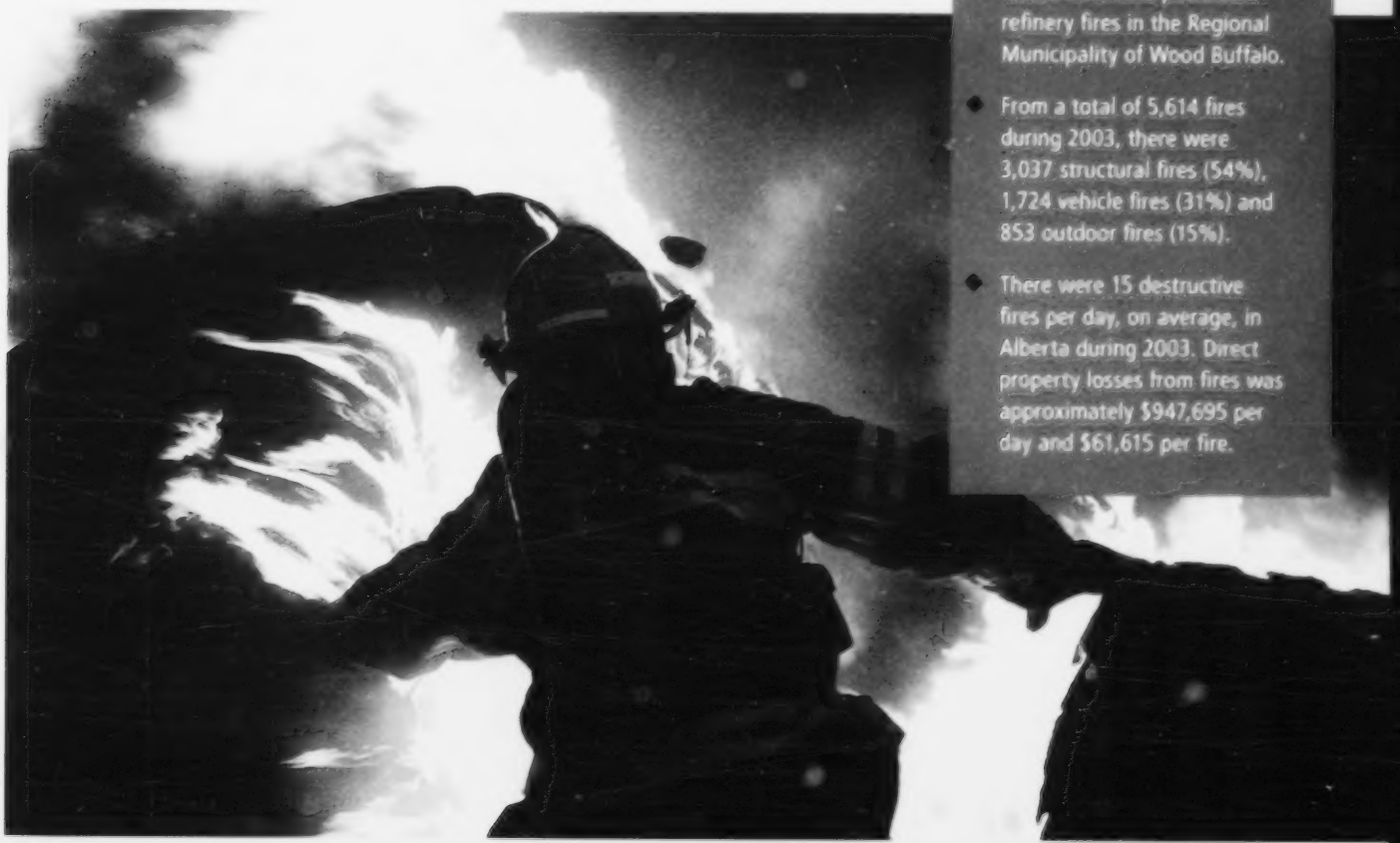
Fire Losses in Alberta 1994 - 2003

Year	Fires	Deaths	Injuries	$ Losses	Adjusted $ Losses
1994	6,897	25	490	110,138,438	107,347,405
1995	6,528	36	425	111,140,466	105,848,062
1996	6,304	41	451	120,556,429	112,354,546
1997	6,670	37	448	141,964,034	129,647,519
1998	6,579	20	429	139,492,065	126,009,092
1999	6,380	51	386	146,519,201	129,205,644
2000	6,457	27	341	158,746,151	135,218,186
2001	7,020	43	393	230,340,922	191,790,942
2002	5,986	31	309	274,993,381	221,411,739
2003	5,614	24	321	345,908,629	266,699,020
Total	64,435	335	3,993	1,779,799,716	1,525,532,155

Adjusted losses were calculated from actual losses using the Annual Consumer Price Index (C.P.I.) figures for Alberta. Source: *Canadian Economic Observer*, Statistics Canada Catalogue No. 11-210, 2003/2004. (1992 C.P.I. = 100).

FIRE

- During the 10-year period from 1994 - 2003, the annual number of fires averaged 6,444. 2003 marks the second year in which the number of fires declined below 6,000. Whether this decline is real or due to sub-standard reporting is not clear.
- The numbers of all fire-related deaths and fire injuries have fluctuated between 20 - 51 and 321 - 490, respectively. Property losses have increased steadily since 1994. The notable increase in property losses in 2003 was due to $152 million in property losses from nine petroleum refinery fires in the Regional Municipality of Wood Buffalo.
- From a total of 5,614 fires during 2003, there were 3,037 structural fires (54%), 1,724 vehicle fires (31%) and 853 outdoor fires (15%).
- There were 15 destructive fires per day, on average, in Alberta during 2003. Direct property losses from fires was approximately $947,695 per day and $61,615 per fire.



Alberta Fire Losses

Fire Rates and Per Capita Losses 1994 - 2003

Year	Population	Fires	Fire Rate*	$ Losses	$ Loss/Capita
1994	2,601,282	6,897	2.7	110,138,438	42.3
1995	2,615,873	6,528	2.5	111,140,466	42.5
1996	2,679,435	6,304	2.4	120,556,429	45.0
1997	2,744,731	6,670	2.4	141,964,034	51.7
1998	2,781,290	6,579	2.4	139,492,065	50.2
1999	2,871,271	6,380	2.2	146,519,201	51.0
2000	2,932,963	6,457	2.2	158,746,151	54.1
2001	2,962,664	7,020	2.4	230,340,922	77.7
2002	3,050,889	5,986	2.0	274,993,381	90.1
2003	3,091,831	5,614	1.8	345,908,629	111.9

* Fire Rate = Number of fires per 1,000 population

Fire Losses Related to Economic Indices 1994 - 2003

Year	Fire Losses ($)	Gross Domestic Product ($ million)	% of GDP	Personal Income ($ million)	% of Personal Income
1994	110,138,438	88,116	0.12	62,088	0.18
1995	111,140,466	92,120	0.12	64,528	0.17
1996	120,556,429	98,738	0.12	66,938	0.18
1997	141,964,034	107,048	0.13	72,952	0.19
1998	139,492,065	107,439	0.13	78,279	0.18
1999	146,519,201	117,080	0.13	81,151	0.18
2000	158,746,151	143,721	0.11	89,030	0.18
2001	230,340,922	151,173	0.15	97,907	0.24
2002	274,993,381	149,998	0.18	102,094	0.27
2003	345,908,629	170,631	0.20	106,180	0.33

- The fire rate for the province has averaged 2.3 between 1994 and 2003.
- As a percentage of gross domestic product, fire losses have increased by 11% between 2002 and 2003. As a percentage of personal income, fire losses have increased by 22% over the same period.
- August (11%), May (10%) and July (10%) had the highest average number of fires per month. January had the highest property loss per fire ($38,930,520).
- The number of fires were highest on Saturdays (15%) followed closely by Sunday and Monday (15% each), while dollar loss per fire was highest on Mondays ($222,846).
- Where the time of fire was known, the number of fires peaked (20%) between 4 p.m. and 8 p.m. The dollar loss per fire was highest ($219,991) during midnight to 4 a.m.

Fire Losses by Major Property Classes

Major Property Classes	Fires	%	$ Losses	% of $ Losses
Assembly	177	3	17,419,821	5.0
Institutional	41	1	447,049	0.1
Residential	1,744	31	74,170,189	21.4
Business and Personal Service	37	1	7,053,555	2.0
Mercantile	140	2	20,083,228	5.8
Industrial Manufacturing Properties	105	2	162,142,668	46.9
Storage Properties	326	6	10,181,102	2.9
Special Property – Transportation Equip.	2,610	46	39,818,655	11.5
Miscellaneous Property	434	8	14,592,362	4.2
Total	5,614	100	345,908,629	100.0

Fire Losses by Major Sources of Ignition

Major Sources of Ignition	Fires	%	$ Losses	% of $ Losses
Not Determined	1,272	23	73,340,596	21.2
No Igniting Object	20	0	4,479,968	1.3
Cooking Equipment	443	8	7,854,270	2.3
Heating Equipment	318	6	165,692,039	47.9
Appliances and Equipment	179	3	8,847,284	2.6
Electrical Distribution Equipment	727	13	19,225,222	5.6
Other Electrical Equipment	125	2	5,607,950	1.6
Smoker's Material and 'Open' Flames	1,391	25	37,652,036	10.9
Exposure	585	10	8,774,473	2.5
Miscellaneous	554	10	14,434,791	4.2
Total	5,614	100	345,908,629	100.0

FIRE FACTS

- The largest number of fires occurred in ground transport vehicles (26%) and one and two family dwellings (19%), followed by apartments (8%), trash/rubbish/recyclables (8%), outdoor properties (5%) and individual residential parking garages (3%).
- The highest dollar losses were in petroleum refineries ($153 million or 44%) and one and two family dwellings ($56 million or 16%), followed by buildings under construction ($18 million or 5%).
- Smoker's material and 'open' flames (25%), electrical distribution equipment (13%) and exposure fires (10%) were the most common sources of ignition in Alberta fires in 2003.
- Sources of ignition were not determined in 23% of the fires in 2003, and these accounted for 21% of all dollar losses.
- Where known, the most common fuel or energy associated with the source of ignition were:
  - electricity (25%)
  - exposure fires (10%)
  - smoker's material (7%)
  - natural or other fuel/gas (5%)
  - gasoline (4%).

Fire Losses by Major Acts or Omissions

Major Acts or Omissions	Fires	%	$ Losses	% of $ Losses
Not Determined	789	14	55,199,422	16.0
Act or Omission N/A	58	1	5,606,658	1.6
Arson or Set Fires	1,348	24	37,137,468	10.7
Misuse of Source of Ignition	584	10	15,426,385	4.5
Misuse of Material Ignited	403	7	11,360,301	3.3
Mechanical, Electrical Failure, Malfunction	1,572	28	42,317,563	12.2
Construction, Design, Installation Deficiency	101	2	153,878,117	44.5
Misuse of Equipment	73	1	3,435,031	1.0
Human Failing	569	10	17,982,637	5.2
Vehicle Accident	49	1	1,367,663	0.4
Miscellaneous	68	1	2,197,384	0.6
Total	**5,614**	**100**	**345,908,629**	**100.0**

Fire Losses by Major Materials First Ignited

Major Materials First Ignited	Fires	%	$ Losses	% of $ Losses
Not Determined	1,361	24	77,434,392	22.4
Building Components	677	12	32,433,964	9.4
Furniture, Furnishings	245	4	10,023,730	2.9
Clothing, Textiles	205	4	6,934,803	2.0
Wood, Paper Products	484	9	22,311,610	6.5
Flammable and Combustible Liquids	854	15	167,431,882	48.4
Flammable Gases	101	2	4,094,143	1.2
Chemicals	245	4	3,284,737	0.9
Agricultural Products	374	7	9,516,516	2.8
Miscellaneous	1,068	19	12,442,852	3.6
Total	**5,614**	**100**	**345,908,629**	**100.0**

F I R E

- Incendiary fires accounted for 24% of all fires in Alberta in 2003. This means that nearly one out of four fires was deliberately set.
- The most common act or omission was mechanical, electrical failure or malfunction (28%), which may be related to the fact that the majority of fires in Alberta are in ground transport vehicles.
- Materials most commonly ignited first were flammable and combustible liquids (15%) followed by building components (12%).

Initial Detection of Fires

Property Classification	Fires	%
Automatic Sprinkler System	28	0
Automatic System Other Than Sprinkler	3	0
Heat Alarm: Single Station	1	0
Heat Detector: Linked To Alarm System	10	0
Initial Detection – Unclassified	13	0
Initial Detection – Unknown	37	1
No Intial Detection/Burnt Out	16	0
Smoke Alarm: Single Station	135	2
Smoke Detector: Linked To Alarm System	82	1
Visual Sighting/Personal Detection	5,289	94
Total	**5,614**	**100**

Fires by Method of Fire Control and Extinguishment

Method of Fire Control and Extinguishment	Fires	%
Miscellaneous – Unknown	362	6.4
Hand Fire Extinguisher	612	10.9
Standpipe System	116	2.1
Makeshift Fire Fighting Aid	551	9.8
Fire Department – Water	3,332	59.4
Fire Department – Other Than Water	217	3.9
Sprinkler System	27	0.5
Fixed System Other Than Sprinklers	8	0.1
Burned Out	327	5.8
Miscellaneous – Unclassified	62	1.1
Total	**5,614**	**100.0**

FIRE FACTS

- Visual sighting or other means of personal detection (94%) was the primary means of initial detection of fires in 2003, while smoke alarms/ detector devices accounted for 3%.
- Where the method of fire control and extinguishment is known, fire departments extinguished 60% of all reported fires.
- Hand fire extinguishers (11%) and 'makeshift' fire fighting equipment (10%) were the next most common methods of extinguishment.

Alberta Home Fire Losses

Home Fires by Type of Home

Type of Home	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
One/Two Family Dwellings	1,088	69	8	73	131	66	56,316,304	80
Apartments, Tenements, Flats	371	23	1	9	57	29	10,458,336	15
Mobile Homes	121	8	2	18	9	5	3,613,871	5
Total	1,580	100	11	100	197	100	70,388,511	100

Risk of Fire Loss by Type of Home (1999 - 2003)

Type of Dwelling	No. of Units	Fires	Fires/ 1,000 Homes	Fire Deaths	Fire Deaths/ 100,000 Homes	Fire Injuries	Fire Injuries/ 100,000 Homes
One/Two Family Dwellings	847,301*	5,671	1.3	77	1.8	592	14.0
Apartments, Tenements, Flats	220,625	1,971	1.8	23	2.1	336	30.5
Mobile Homes	36,170	607	3.4	14	7.7	77	42.6

* Statistics Canada, 2001 Census.

Home Fires by Major Areas of Fire Origin

Area of Origin	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Kitchen/Cooking Area	387	24	2	18	66	34	7,608,056	11
Exterior Wall	153	10	0	0	6	3	4,626,930	7
Sleeping (under 5 occupants)	148	9	5	45	38	19	7,633,457	11
Lounge/Living Room	134	8	2	18	23	12	6,870,405	10
Court/Patio/Terrace/ Balcony/Porch	115	7	0	0	7	4	4,949,347	7
Ceiling Space – Attic/Crawl Space/Ceiling and Floor Assembly	94	6	0	0	6	3	5,851,764	8
Laundry Area	67	4	0	0	2	1	2,156,269	3
Heating Equipment Room	58	4	0	0	5	3	1,390,496	2
Chimney/Flue Pipe/Gas Vent	40	3	0	0	2	1	1,601,702	2
Vehicle (garage)	34	2	0	0	12	6	5,778,327	8
All Other Areas	283	18	0	0	24	12	15,546,506	22
Area of Origin – Unknown	67	4	2	18	6	3	6,375,252	9
Total	1,580	100	11	100	197	100	70,388,511	100

- Twenty eight per cent of all fires in Alberta occurred in homes. Home fires accounted for 46% of all fire deaths (11 out of 24), 61% of all fire injuries (197 out of 321) and 20% of all property losses ($70m out of $346m) from all fires.
- Based on an analysis of home fire data for the five-year period (1999 - 2003), the relative frequency of fire in a mobile home is 2.6 times that in a one/two family dwelling. The same analysis showed that the annual risk of dying or being injured in a mobile home fire is four times and three times higher than in a one/two family dwelling.

Major Known Causes of Home Fires

Fire Causes	Fires	% of Fires	Deaths	Injuries	$ Losses
Other Cooking*	205	13	1	26	3,442,792
Heating Equipment Related**	188	12	1	20	9,758,342
Arson/Set Fire	188	12	0	15	5,639,189
Smoking	176	11	3	23	5,805,033
Overheated Cooking Oil Fire	140	9	0	34	2,575,923
Electrical Distribution Equipment	117	7	1	5	7,618,394
Exposure Fire***	102	6	0	1	3,515,880
Candle (accident)	67	4	1	20	3,242,195
Light/Fluorescent Bulb	44	3	0	7	2,035,742
Clothes Dryer	44	3	0	1	1,714,941
Appliance/Equipment Related	37	2	0	6	1,804,654
Child Fireplay	35	2	0	7	1,465,072
Flammable/Combustable Liquid/Gas Ignition	22	1	1	7	504,466
Welding/Torch Too Close	9	1	0	0	135,472
Match/Lighter Not Used From Smoking	3	0	0	0	144,000
Inadequate Control of Open Fire	1	0	0	0	3,000
Other Causes/Unknown	202	13	3	25	20,983,416
Total	1,580	100	11	197	70,388,511

* Cooking related fires except those involving overheated cooking oil.
** Heating equipment includes furnaces, water heaters, fireplaces, wood stoves, space heaters and associated chimneys/vents.
*** An exposure fire is a fire that spreads from one property to an adjacent property.

FIRE FACTS

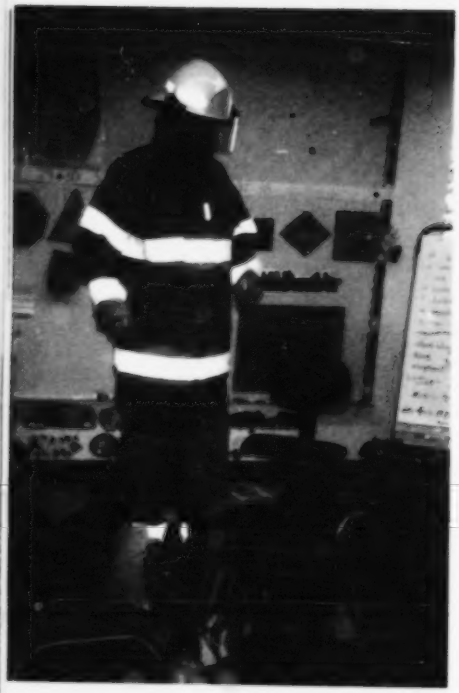
- Most home fires started in the kitchen/cooking area (24%).
- The highest percentage of home fire deaths (45%) occurred in sleeping area fires.
- The highest percentage of home fire injuries (34%) occurred in kitchens/ cooking areas.
- Most kitchen fires started on stove/top burners (72%), causing 82% of injuries in kitchen fires.
- Major sources of ignition in bedrooms were cigarettes and smoker's materials (24%).
- Exposure fires were the major sources of ignition (36%) where fires started on the exterior wall.
- In living rooms, cigarettes and smoker's materials accounted for the highest proportion (19%) of fires.
- Fireplaces accounted for 28% of chimney/flue-pipe/gas vent fires.
- In garage (vehicle) fires, 26% were attributed to electrical equipment and short circuits.
- Nearly 57% of laundry area fires were started in clothes dryers.
- In heating equipment rooms, furnaces and water heaters were the two major sources of ignition (52%).

Home Fires by Smoke Alarm Operation

Smoke Alarm Installation

Status	Fires	% of Fires	Deaths*	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Not Installed	500	32	4	36	39	20	20,047,996	28
Installed	1,080	68	7	64	158	80	50,340,515	72
Total	1,580	100	11	100	197	100	70,388,511	100

*Please refer to the research article titled, *"Making sense of smoke alarm data and home fire deaths,"* in the August 2004 issue of *Alberta Fire News* (pages 16 - 19), for a detailed statistical analysis of home fire deaths in relation to smoke alarms.
Alberta Fire News is available at www.municipalaffairs.gov.ab.ca/fco



Activation of Smoke Alarms

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Activated	332	31	2	29	48	30	13,128,828	26
Not Activated	257	24	1	14	41	26	6,423,206	13
Activation – unknown	491	45	4	57	69	44	30,788,481	61
Total	1,080	100	7	100	158	100	50,340,515	100

Alarm Assistance to Occupants

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Not applicable/no occupants	40	12	0	0	0	0	2,316,917	18
Alarm assisted occupants to evacuate	230	69	0	0	43	90	9,795,652	75
Alarm did not assist occupants to evacuate	51	15	1	50	4	8	726,978	6
Occupant evacuation unknown	11	3	1	50	1	2	289,281	2
Total	332	100	2	100	48	100	13,128,828	100

Reasons – Alarms Did Not Assist

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Alarm inaudible	1	2	0	0	0	0	1,000	0
Physical/mental challenge	1	2	1	100	0	0	35,000	5
Unable to evacuate – age related	2	4	0	0	1	25	25,500	4
Unnecessary to evacuate	44	86	0	0	3	75	605,826	83
Under the influence of drugs/alcohol	3	6	0	0	0	0	59,652	8
Total	51	100	1	100	4	100	726,978	100

Reasons – Alarms Not Activated

Status	Fires	% of Fires	Deaths	% of Deaths	Injuries	% of Injuries	$ Losses	% of $ Losses
Unsuitable location	2	1	0	0	1	2	6,010	0
Dead battery	19	7	0	0	6	15	610,706	10
No battery	58	23	1	100	17	41	1,835,747	29
AC not connected/ disabled	23	9	0	0	1	2	648,884	10
Mechanical failure	17	7	0	0	7	17	386,571	6
Not enough smoke	138	54	0	0	9	22	2,935,288	46
Total	257	100	1	100	41	100	6,423,206	100

FIRE FACTS

- In 2003, 32% of homes where fire occurred did not have smoke alarms installed. Lack of power source was the major reason for no alarm activation (39%).

Act or omission

The human element by which someone has done something (an act) or failed to do something (an omission). The act or omission indicates whether the fire was deliberate, neglectful or accidental.

Incendiary or Set Fires:
includes arson, suspected incendiarism, riot, mischief or vandalism.

Misuse of Source of Ignition:
includes disposal of smoker's material, thawing, inadequate control of an open fire, children playing with source of ignition, welding or cutting too close to combustible material or torch too close to combustible material.

Misuse of Material Ignited:
includes fuel spilled accidentally, improper fuelling technique, cleaning or washing parts, improper container, overheated cooking oil, combustible placed too close to heat, and improper storage.

Mechanical and Electrical Failure or Malfunction:
includes part failure, automatic or manual control failure, electrical short circuit and part worn out.

Construction, Design or Installation Deficiency:
includes construction or design deficiency, installation too close to a combustible, other installation deficiency or over-fusing.

Misuse of Equipment:
overfuelling, includes any misuse of equipment or tools.

Human Failing:
includes person asleep, temporary loss of judgement, physical disability, panic, influence of alcohol or drugs and ignorance of hazard.

Area of origin

The area of a building or vehicle where the fire started.

Means of Egress:
the area allowing an individual transit or a way of going out. Includes hallway, stairway, escalator, lobby and elevator.

Assembly, Sales Area:
areas where groups of people gather. Includes theatre, arena, lounge, living room, sales or show room, library, museum and sports facility.

Function Area:
the area where a mode of action or activity is undertaken. Includes sleeping area, dining area, bar, washroom, office, laboratory, printing and photographic reproduction area, kitchen, laundry room, operating room, performance area and manufacturing area.

Storage Area:
the area inside a building where items are stored. Includes product storage area, closet, equipment area, records storage area, shipping and receiving area, trash and rubbish area, vehicle garage and agricultural product storage area.

Service Facilities:
conveyance items such as dumbwaiters, service shafts, laundry and garbage chutes, heating and cooking ducts and chimneys or gas vents.

Structural Area:
includes crawl space, balcony, ceiling and floor assembly, wall assembly, exterior wall or exterior roof and awning or canopy.

Vehicle Area:
includes engine area, fuel area, control area, passenger area and cargo area.

Outside Area:
includes open area such as lawn, field or park, court, patio, parking area, outdoor storage area and trash or rubbish area.

Death

A person killed accidentally as a direct result of a fire or a person who dies from a fire injury within one year following the date on which the injury was sustained.

Fire Death:
refers to a person who died as a direct result of a fire, either by smoke inhalation or burns.

Death Involving Fire:
refers to a person who was in a place where fire occurred, but who may have died from a cause other than the fire itself (e.g. a person who dies in an automobile accident where the vehicle subsequently catches fire prior to death, a suicide by burning or asphyxia, an incendiary fire set for the specific reason of killing).

Fuel or energy

The fuel associated with the source of ignition. Includes coal, wood, fuel oil, gasoline, natural gas or other fuel gases, smoker's material, electricity, lightning or exposures.

Injuries

A person accidentally injured as a direct result of a fire (a member of the fire department accidentally injured while in the process of fighting a fire or injured as a result of an accident while en route to or returning from the scene of an actual fire is considered a fire action injury).

Minor Injury:
an injury that does not require hospitalization of more than a 24-hour period or absence from work of not more than one full day.

Light Injury:
an injury that required admission to a hospital for between 24 hours to 48 hours and/or absence from work for a period of two to fifteen days.

Serious Injury:
an injury that required admission to a hospital for a period of more than 48 hours and/or an absence from work for a period exceeding fifteen days.

Material first ignited

The actual material that ignites and creates the fire condition.

Structural Components, Finish Materials:
includes roof covering, wall covering, floor covering, structural component, ceiling covering and insulation.

Furniture, Furnishings:
includes furniture, ironing board, mattress, bedding, drapery and broom, mop or brush.

Clothing, Textiles:
includes clothing, fabric, fur and tarpaulin.

Wood, Paper Products:
includes wood, wood shavings, paper, cardboard and paper stock.

Flammable Liquids:
includes gasoline, fuel oil, flammable liquids, paint, varnish, tar, asphalt, polish and wax.

Flammable Gases:
includes natural gas, propane, anaesthetic gas, acetylene and hydrogen.

Chemicals:
includes starch, flour, cellulose nitrate, plastic, oxidizing material, magnesium and alloys, titanium, natural or synthetic rubber and ammonium nitrate.

Agricultural, Forestry Products:
includes fibres, grains, hay, trees, felled timber, grass, fertilizer and manure.

Miscellaneous:
includes coal, garbage, trash, oily rags and artificial trees.

Property classification

The principal use or occupancy of the building.

Assembly:
property for the gathering of persons for civic, political, travel, religious, social, educational or recreational purposes. Includes theatres, amusement or recreation places, schools, colleges, universities, churches, social or sport clubs, libraries and museums, eating establishments and passenger terminals.

Institutional:
property for medical treatment, or care of persons suffering from illness, disease or infirmity, for the care of infants, convalescents or aged persons and for penal or corrective purposes. Includes prisons, jails, reformatories, homes for the aged, children's hospitals, hospitals and clinics.

Residential:
property in which sleeping accommodation is provided for normal residential purposes. Includes one and two family dwellings, apartments, rooming or boarding houses, hotels, motels, dormitories and mobile homes.

Business and Personal Service:
property for conducting business. Includes offices, personal services such as hairdressing and data processing or storage facilities.

Mercantile:
property used for the display and sale of merchandise. Includes food and beverage sales, textile and clothing sales, furniture and appliance sales, books and specialty sales, recreational and hobby supply sales, repair shops, laundries, vehicle and boat sales and department or variety stores.

Industrial Manufacturing Properties:
property where raw materials are transformed into new products and where the component parts of manufactured products are assembled. Includes chemical, petroleum, paint and plastic manufacturing; wood, furniture, and paper manufacturing; metal product and electrical equipment manufacturing; food processing; beverage, tobacco, soap and margarine manufacturing; textile manufacturing; footwear and wearing apparel manufacturing; and vehicle and related equipment manufacturing.

Storage Properties:
property used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals. Includes agricultural product storage; textile, fibre and clothing storage; processed food and beverage storage; flammable liquids, gas and petroleum products storage; wood, furniture, and paper products storage; chemical, paint and plastic storage; metal products, machinery, and electrical appliance storage and vehicle storage.

Special Property and Transportation Equipment:
mainly outdoor property and transport equipment. Includes outdoor property, piers, buildings under construction or demolition, watercraft, rail transport vehicles, ground transport vehicles, aircraft and other special equipment.

Miscellaneous:
includes laboratories, farm facilities, outbuildings, utilities, glass and pottery manufacturing, mining, communications and nucleonics.

Source of ignition

The actual equipment, device or object which brings about ignition.

Cooking Equipment:
includes stove, range, food warming appliance, deep fat fryer, broiler and portable cooking unit.

Heating Equipment:
includes central heating unit, service water heater, space heater, fireplace, chimney, flue pipe and steam or hot water pipe.

Appliances and Equipment:
includes dryer, air conditioning equipment, pressing iron and incinerator.

Smoker's Material and 'Open' Flames:
includes cigarettes, pipes, cigars and/or matches, lighters when used in conjunction with smoking. Includes matches and lighters not associated with smoker's material, candles, cutting torches, welding equipment and hot ashes.

Exposure:
includes exposure from an attached or detached structure, lumber yard, open fire, forest, grass and brush.

Miscellaneous:
includes internal combustion engine, heat treatment equipment, industrial oven, tar pot, fireworks, conveyors, commercial and industrial machinery and chemical reactions.

Digital images and photos submitted to enhance this report by fire and emergency response departments are gratefully acknowledged.

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